

## ECTOPARASITE STRAGGLERS (SIPHONAPTERA AND ACARINA) OF THE WILD RABBIT, *ORYCTOLAGUS CUNICULUS* (L.), IN VICTORIA

By Rosamond C. H. Shepherd and J. W. Edmonds

Keith Turnbull Research Inst., Vermin & Noxious Weeds Destruction Board, Frankston, Vic.

### Abstract

Three rodent fleas, *Nosopsyllus fasciatus*, *N. londiniensis* and *Pygiopsylla hoplia*, and one dog flea, *Ctenocephalides canis* were found on wild rabbits collected during an ectoparasite survey of rabbits in Victoria during the period 1971-1975. Straggler mite species found included *Ornithonyssus bacoti* and *Demodex* sp. Tick species found were *Ixodes cornuatus* and *I. tasmani*.

### Introduction

The occurrence of ectoparasite stragglers on wild rabbits, *Oryctolagus cuniculus* (L.) in the United Kingdom has been reported by Mead-Briggs and Hughes (1965). In Australia, Mykytowycz (1957) has listed ectoparasite species found on wild rabbits and Williams (1972) has reported on several species found on rabbits in New South Wales. Shepherd and Edmonds (1973) found the rat flea *Nosopsyllus fasciatus* (Bosc) (Ceratophyllidae) on rabbits in the Werribee district of Victoria. Dunnet and Mardon (1974) have recorded the presence of eight species of Siphonaptera on wild rabbits in Australia.

This paper reports the presence of two other species of fleas, *Nosopsyllus londiniensis* (Rothschild) and *Ctenocephalides canis* (Curtis), on rabbits and the occurrence of species previously recorded. Species of Acarina observed as stragglers are also recorded, these species have not been recorded from Victoria before.

All the species reported here were found during an ectoparasite survey carried out at 33 sites throughout Victoria (Fig. 1) using methods described previously (Shepherd and Edmonds 1973). 2,032 rabbits were examined.

### Results and discussion

#### Siphonaptera

*Nosopsyllus fasciatus* (Bosc) (Ceratophyllidae). This rat flea was previously reported on rabbits in the Werribee district (Shepherd and Edmonds 1973; Dunnet and Mardon 1974). Individual female specimens have been collected from rabbits at Winchelsea, Warrnambool, Clear Lake and Alexandra, as well as further specimens from the Melbourne Metropolitan Board of Works Farm, Werribee.

*Nosopsyllus londiniensis* (Rothschild) (Ceratophyllidae). A single female specimen was found on a rabbit at Pine Plains in the Mallee. This rodent flea, commonly found on *Mus musculus* L. (Dunnet and Mardon 1974), has been recorded in large numbers on mice from Pine Plains [up to 26 per mouse during the 1970 mouse plague (Shepherd unpublished data)]. Mouse numbers have fallen since the plague, but they are probably present in sufficient numbers for cross infestation to occur as feral mice can still be found in low numbers around the cropping paddocks. Newsome (1969) found mice present all the year round prior to the plague in South Australia.

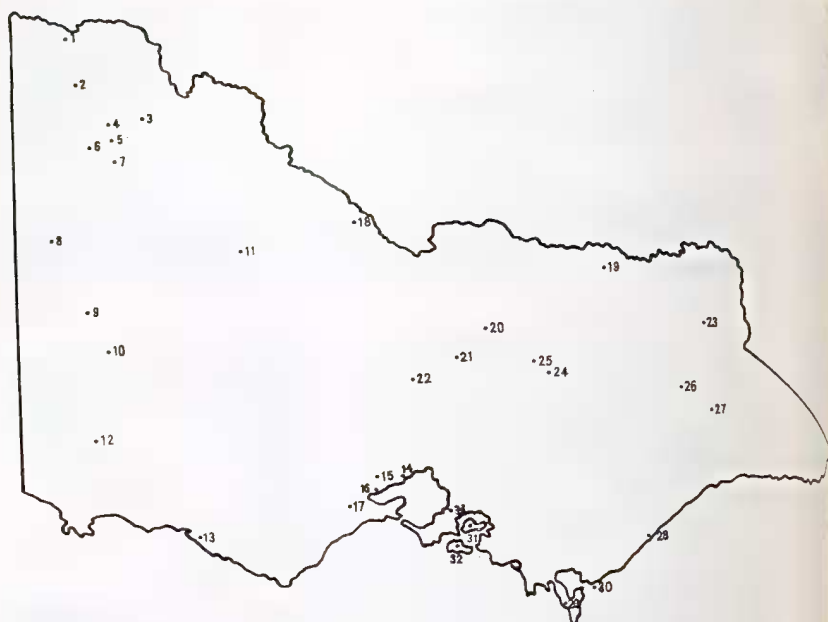


FIG. 1. The locations of the 33 sites in Victoria from which rabbits were sampled for ectoparasite survey. 1, Meringur; 2, Sunset; 3, Ouyen; 4, Walpeup; 5, Barham; 6, Pine Plains; 7, Yarto; 8, Telopea Downs; 9, Goroke; 10, Clear Lake; 11, Donald; 12, Casterton; 13, Warrnambool; 14, Werribee; 15, You Yerrum; 16, Avalon; 17, Winchelsea; 18, Kerang; 19, Chiltern; 20, Euroa; 21, Seymour; 22, Pyalong; 23, Dartmouth; 24, Fraser National Park; 25, Alexander; 26, Cobungra; 27, Negoura; 28, Seaspray; 29, Wilson's Promontory; 30, Seal Island; 31, French Island; 32, Churchill Island; 33, Frankston.

One other *Nosopsyllus* sp. was collected from the same area. It was damaged to identify to species.

*Pygiopsylla hoplia* Jordan and Rothschild (Phygiopsyllidae). Four specimens, two female and two male, were collected from rabbits at Wilson's Promontory. A single specimen was also found on *Rattus lutreolus* (Günther) trapped in the area. This flea is widespread in Australia on native mammalian rodents and has been found previously on rabbits (Dunnet, pers. comm.). Presumably this was the only site at which contact between rabbits and rodent hosts was close enough for stragglers to be found on rabbits, although Dunnet and Mardon (1974) record *P. hoplia* on a wide range of hosts in areas where they have collected rabbits.

*Ctenocephalides canis* (Curtis) (Pulicidae). Single specimens of *C. canis* were collected on rabbits from Churchill Island, Chiltern and Alexandra. Foxes, *Vulpes vulpes* (L.), are known to live in these areas. It is widespread on foxes in Victoria. It has been found on rabbits from three areas only. On Churchill Island the

resident dog is an active "rabbiter". One fox collected from the island did not carry *C. canis*. The single specimen on a rabbit may have been a straggler from the dog, rather than from foxes. It might be expected that *C. canis* would be found more frequently on rabbits as foxes commonly use rabbit warrens as dens.

*C. felis felis* (Bouche) (Pulicidae). A single specimen was found on a laboratory rabbit housed at the Keith Turnbull Research Institute where cats are known to carry *C. felis felis*. *C. felis felis* was not found on any wild rabbit but Fenner and Ratcliffe (1965) state that "rabbit populations in Victoria and at least one population in New South Wales were infested by the cat flea (*Ctenocephalides felis*)." According to Mead-Briggs (1963) *C. felis felis* is rarely found on rabbits in the United Kingdom. He considered that *C. felis felis* occurred on rabbits less frequently in the United Kingdom than in Australia. Our failure to find *C. felis felis* on rabbits in Victoria suggests that the infestation is now rare although feral cats collected in various areas of Victoria are known to carry *C. felis felis* (Shepherd unpublished data).

In a survey of ectoparasites, Mykytowycz (1957) recorded five species of fleas as "occasional" and "alternative" parasites of rabbits. *C. canis* was classified as "occasional", and *C. felis* as "alternative". In our study both species would be classified as "occasional", i.e. parasites for which the rabbit is an occasional host and very rarely found. The other fleas recorded by Mykytowycz were three *Echidnophaga* spp., two of which, *E. perilis* Jordan and *E. myrmecobii* (Rothschild) (Pulicidae), could be classified as "natural" on rabbits from the semi-arid inland areas of Australia.

#### Acarina

*Ornithonyssus bacoti* (Hirst). This rat mite was found on eleven rabbits from nine widely separated sites, Dartmouth, Euroa, Seymour, Fraser National Park, Wilson's Promontory, Kerang, Warrnambool, Werribee and Omeo. The highest number collected from one rabbit was four at Kerang. The highest percentage of infested rabbits also occurred at Kerang, where two out of ten collected were infested. Williams (1972) found that 39% of the rabbits examined in New South Wales were infested and that the mite occurred under a wide range of environments. In Victoria the mite was found in all regions except the Mallee and Wimmera but not at all sites in those regions. The percentage of rabbits infested was much lower than that reported by Williams. Only 0.01% of Victorian rabbits examined carried *O. bacoti*.

These collections indicate that the mite, although widespread, is much less frequent on rabbits in Victoria than it is in New South Wales.

Mykytowycz (1957) lists eight species of mites as being "occasional" or "alternative" parasites on rabbits, none of which was recorded from Victoria. Of these eight, only *O. bacoti* has been found in this survey.

*Demodex* sp. (Demodicidae) (Id. R. Domrow). A single specimen of this genus was recovered from a rabbit at Seymour. It was probably a straggler from a canine or other domestic animal infestation, as the rabbit is not thought to be a natural host of *Demodex* sp. in Australia (Radford 1950).

Mykytowycz (1957) recorded the rabbit as an alternative host for *Trombicula samboni* (Trombiculidae), a common itch-mite in South Australia. Womersley (1952) mentioned *T. samboni* as being present in South Australia where it has used rabbits as an alternative host after the extermination of the native fauna. *T. samboni* was not found on Victorian rabbits although rabbits from areas adjacent to the south-east of South Australia, where the mite is common, have been examined.

Other mites collected from rabbits included *Tetranychus* sp. (Id. R. Domrow) and mesostigmatid mites. These are usually pasture species.

*Ixodes cornuatus* Roberts and *I. tasmani* Neumann (Ixodidae), nymphs (Id. I. Beveridge and J. Arundel). These ticks were found on rabbits collected from Churchill Island. Nymphs of *I. cornuatus* have not been described (Roberts 1970 and J. Arundel, pers. comm.). They are considered indistinguishable from nymphs of *I. holocyclus* (Beveridge, pers. comm.). *I. cornuatus* has not been recorded on rabbits by Roberts (1970), but *I. tasmani*, a widespread and common species in Victoria, has been (Roberts 1970).

The primary hosts of *Ixodes* spp. on Churchill Island are not known. None were found on foxes or *R. rattus* collected on the island but it is likely that the presence of *Ixodes* spp. on the rabbit is a secondary infestation.

Mykytowycz classified three tick species as "occasional". These were *Amblyomma* sp., *Boophilus microplus* (Canestrini) and *I. holocyclus* Neumann. Neither *Amblyomma* sp. nor *B. microplus* were found in this survey.

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